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THE EARLIEST RECORD OF ARCTIC PLANTS.

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Through the courtesy of Dr. Edw. I. Greene my attention has been called to the fact that our knowledge of the Arctic flora is not of recent date. The invaluable botanical library which Dr. Greene has accumulated, and which is now located in the Catholic University in Washington, D. C., contains a vast number of old books, which are truly a great boon to the working botanist. It was in this library that Dr. Greene showed me a short chapter in Ray's *Historia Plantarum*,* wherein is enumerated and described some plants collected in Spitzbergen more than two hundred years ago.

The chapter referred to is headed "Plantæ Spitzbergenses a Frederico Martens Hamburgensi in itinero suo observatæ delineatæ et descriptæ." When I examined the names "*Aloefolia florum capitulis rotundis*," etc., and the accompanying descriptions, which latter might just as well have represented almost any plant outside the Arctic, I felt discouraged. The title of the chapter, however, gave the clue—*i. e.*, the original record by Martens, who was said to have not only described these plants, but even to have figured them.

This is the work which Ray mentions in a letter to Dr. Hans Sloane,† where he expresses his great admiration of the careful observations made by Martens. Martens' own account appeared

* John Ray, vol. III, London, 1704, p. 226, Appendix.

† Correspondence of John Ray, edited by Edwin Lankester, London, 1848, p. 474.

in his famous little book "Spitzbergische oder Groenlandische Reisebeschreibung gethan im Jahr 1671."* Martens was the surgeon of the ship "Jonas im Wallfisch," which got as far north as the 81st degree of latitude. From here he visited the north-western part of Spitzbergen, from whence he brought home several specimens of animals and plants.

Many of the observations in Martens' book show that he was possessed of unusual energy and skill as a scientific traveler. His voyage was made during a period when Spitzbergen was annually visited by a large number of whalers from various countries in Europe. So great was the traffic that from 1670 to 1710 not less than 2,289 ships visited this island, killing the vast number of nearly ten thousand whales. I have not been able to find any record of the Arctic flora prior to the period named, so that Martens is believed to have been the first writer on the Arctic flora.

His descriptions of Arctic plants are given in the third part of his book (page 41) "Von den Pflanzen so ich in Spitzbergen gefunden." The descriptions are accompanied by four plates, illustrating in all fourteen species. Although the diagnoses are somewhat puzzling, they certainly are much more accurate than those given by the learned English botanist, and his drawings, as a supplement, will enable the reader to identify the phanerogams and one of the two algæ.

The first plant which Martens describes is "Kraut mit Aloeblättern" (Table G, Fig. a), which Ray named "*Aloefolia florum capitulis rotundis*." This plant, judging from the illustration, is undoubtedly *Saxifraga stellaris* L., forma *comosa* Poir. The statement that the flowers form small, flesh-colored heads ("nudo oculo vix discernendi") would seem to indicate that this plant is the Arctic forma *comosa*, the flowers of which are transformed into small bulblets. Besides this, the basal leaves of the drawing agree better with this than with *S. nivalis* L.

"Eingekerbttes Kleinhauswurtz" (Table F, Fig. a) is well drawn and represents *Saxifraga nivalis* L. The "Hauswurtz" of the Germans is now the popular name for *Sempervivum tectorum*, so that the identification is not so far wrong. Ray has described this plant under the name "*Sedum minus dentatum, capitulis squamosis*." The flowers are described in this species as having five petals, so that Martens would surely have seen the single

* Friderich Martens, Hamburg, 1675.

flowers of the foregoing species, if there had been any, instead of simply speaking about their forming small heads, a fact which seems to favor the supposition that he meant the bulblets, as I have mentioned above.

Four species of "Hanen-Füssen" ("Crowfoot") are also fully described and accurately figured. One of these, however, is *Saxifraga rivularis* L. (Table H, Fig. C). The others are: *Ranunculus hyperboreus* Rottb. (Table H, Fig. c), *R. pygmaeus* Wahlbg. (Table G, Fig. e), and *R. sulphureus* Soland (Table. I, Fig. d). The *Saxifraga* he describes as having white petals, and the figure given is a good illustration of this species. Ray has named these "*Ranunculi Spitzbergenses*."

"Löffel-Kraut" is a species of *Cochlearia*, and this name is still the popular one for the plant. It was undoubtedly *C. fenestrata* R. Br., which is so far the only known species from Spitzbergen. Ray, it appears, accepted Martens' identification, but, although he did not find any difference between this and *C. Britanica*, he nevertheless called it *C. Spitzbergensis*.

The "Kraut als Mauerpfeffer" (Table F, Fig. c) is *Saxifraga oppositifolia* L. "Mauerpfeffer" is now the German name for some *Sedum*, to which the plant shows great resemblance. The flowers are described as purple, which agrees well with this species of *Saxifraga*. Ray called it "*Sedum minimum vermiculatum purpureum Spitzbergense*."

"Natter-wurtz" (Table I, Fig. a) agrees well with *Polygonum viviparum* L., according to the description and illustration. This plant is very closely related to *Polygonum bistorta*, which is the proper "Natterwurz" of the Germans. Ray came to the same conclusion as Martens and named it "*Bistorta minor Spitzbergensis*."

"Kraut als Mäuse-Oehrlein" (Table G, Fig. d) is exceedingly well illustrated and described and represents *Cerastium alpinum* L., of which the German name is at present "Alpen-Hornkraut." "Mäuseoehrchen" is now used for *Hieracium Pilosella* L., while "Mäuseoehrlein," according to Læselius,* is the name for some species of *Gnaphalium* and *Myosotis*. *Myosotis* is, so far as the name itself is concerned, the only plant to which this name "Mouse-ear" could be applied, as it was by Dioscorides, from the Greek μῦς, a mouse, and οὖς, ὠτίς, an ear. The leaves of *Cerastium alpinum* very closely resemble those of a *Myosotis*, so that it can

* Johannes Læselius: Flora Prussica, Regensburg, 1703.

éasily be seen how the mistake occurred. "*Auriculæ muris affinis herba Spitzbergensis*" is the name given by Ray to this plant, but his diagnosis, "Supremo cauliculo Flos innascitur albus," is the only feature which is characteristic of this *Cerastium*. Martens has, indeed, pointed out the characteristics in a much clearer way.

"Kraut als Singrün" (Table G, Fig. *b*) represents *Salix polaris* Wahlbg. If it were not that the illustration is so good, it would hardly have been possible to identify this plant. "Singrün" is now the name for *Vinca*. The stem is described as knotted and woody and the leaves as occurring in pairs. The flowers were not seen, and Martens is therefore not certain that the plant belongs to *Pyrola minima*. It is called "*Vinca pervinæ similis herba Spitzbergensis*" by Ray. The leaves of this willow are very small and coriaceous, brilliant green. They occur in about two alternately on each branch, and to a certain extent resemble those of some species of *Pyrola*.

"Erdbeer-Kraut" (Table H, Fig. *b*) is *Potentilla fragiformis* Willd. The description is very good, and the statement that the leaves only had three leaflets shows that we have this species before us and not *P. maculata* Pourr., the leaves of which are quinately. The same statement is also given by Ray, "foliis tripartitis divisis . . .," who has called it "*Fragariæ affinis Spitzbergensis*."

Two Algæ are enumerated under the name "Klippen-Kräutern," of which the figure *b* in Plate F represents *Fucus vesiculosus*. The vesicles are described very accurately, and Martens states that he did not observe whether these contained any seeds. His sailors informed him, however, that the small sea snails (Pteropoda), upon which the whales feed, originate from the seeds of this Alga. Martens does not seem to have shared this opinion, however, and says that he is inclined to believe that these snails have, like others, originated from eggs!

The large Alga (Fig. *c* in Plate I) is undoubtedly a species of *Laminaria*.

Several other plants were observed, but were not collected. Only two of these have been described, but these have not been figured. One of these, "*der weisse Mahn*," is evidently *Dryas octopetala* L. "Mahn" is undoubtedly a misprint for "Mohu," the common poppy (*Papaver dubium* or *Rhœas*). Since the only poppy that grows on Spitzbergen, *P. nudicaule* L., has yellow

flowers, it is not likely that Martens meant this plant, but rather the common white *Dryas*, which is not so very unlike a poppy. The other plant is "der rothe Sauerampffer," which probably was *Oxyria digyna* Campd., now called "Säuerling" by the Germans.

If the list of plants collected by Martens be compared with the most recent publication on the flora of Spitzbergen,* it will be seen that all the species named in the list have actually been rediscovered by later expeditions. As to the locality where they were collected, it appears that they were found in the neighborhood of Smeerenberg, on the northwestern shore of Spitzbergen, designated by Martens as "Harlinger Kocherey."

* Nathorst, A. G., Nya Bidrag till Kännedomen om Spetsbergens Kärleväxter, Stockholm, 1883, Kgl. Sv. Vet. Akad. Hdlgr., vol. 20, No. 6, 88 pp.